PROPOSED AMENDMENT TO THE CLAIMS

In the Claims:

Please amend Claims 11 and 21, and cancel Claim 23, without prejudice, such that the claims are as set forth below.

1-10. (Cancelled)

11. (Currently Amended) A device for pumping a predetermined volume of fluid, comprising:

a cavity operably associated with an inlet and an outlet, the inlet of a construction sufficient for operable communication with a source of fluid, the cavity at least partially defined by a resilient housing;

~~a source of fluid operably associated with the inlet;~~

an inlet check valve operably associated with the inlet and an outlet check valve operably associated with the outlet;

a member operably associated with the resilient housing, the member disposed in a first position by way of a biasing force and moveable therefrom to a second position, the member sufficient to fully compress the resilient housing when in one of the first position and the second position such that the cavity is empty of the predetermined volume of fluid, and sufficient to fully decompress the resilient housing when in a different one of the first position and the second position such that the cavity is filled with the predetermined volume of fluid;

a biasing element operably associated with the member and of a construction sufficient to provide the biasing force; and

an actuator comprising a shape memory alloy, the actuator operably associated with the member and of a construction sufficient to move the member from the first position to the second position when the shape memory alloy undergoes a dimensional change relative to an original condition thereof, and sufficient to move the member from the second position to the first position when the shape memory alloy returns toward the original condition.

12. (Previously Presented) The device of claim 11, the cavity being filled with the predetermined volume of fluid when the member is in the first position and being empty of the predetermined volume of fluid when the member is in the second position.

13. (Previously Presented) The device of claim 11, the cavity being empty of the predetermined volume of fluid when the member is in the first position and being filled with the predetermined volume of fluid when the member is in the second position.

14. (Previously Presented) The device of claim 11, wherein the resilient housing comprises a tube.

15. (Previously Presented) The device of claim 11, wherein the resilient housing comprises a tube, the inlet comprises an inlet end of the tube, and the outlet comprises an outlet end of the tube.

16. (Previously Presented) The device of claim 11, wherein the resilient housing comprises a diaphragm.

17. (Previously Presented) The device of claim 11, whercin the resilient housing comprises a diaphragm sealed to a substrate, the inlet is operably associated with the substrate, and the outlet is operably associated with the substrate.

18. (Previously Presented) The device of claim 11, wherein at least one of the inlet check valve and the outlet check valve comprises an elastomeric valve of a construction sufficient for being press-fit into a corresponding one of the inlet and the outlet.

19. (Previously Presented) The device of claim 11, wherein at least one of the inlet check valve and the outlet check valve comprises an elastomeric valve of low cracking pressure.

20. (Previously Presented) The device of claim 11, wherein at least one of the inlet check valve and the outlet check valve comprises an elastomeric valve of a construction sufficient to form a fluid-tight seal in the absence of back pressure.

21. (Currently Amended) The device of claim 11, wherein the biasing ~~force is supplied via~~ element comprises the shape memory alloy.

22. (Previously Presented) The device of claim 11, wherein the shape memory alloy is sufficient to move the member in one direction when the shape memory undergoes the dimensional change, and sufficient to move the member in an opposite direction when the shape memory alloy returns toward the original condition.

23. (Cancelled)

24. (Previously Presented) The device of claim 11, wherein the dimensional change is reversible, the member returning to the first position by way of the biasing force when the dimensional change is reversed.

25. (Previously Presented) The device of claim 11, wherein the dimensional change is repeatable, the member movable from the first position to the second position at least two times.

26. (Previously Presented) The device of claim 11, wherein a volume of the source of fluid diminishes concomitantly as fluid flows therefrom.

27. (Previously Presented) The device of claim 11, wherein the fluid is a drug.

28. (Previously Presented) The device of claim 11, wherein the fluid is insulin.

29. (Previously Presented) The device of claim 28, the device sufficient to pump the predetermined volume of insulin substantially without damage.

30. (Previously Presented) The device of claim 28, the device sufficient to pump the predetermined volume of insulin substantially without damage over a period of three days.

31. (Previously Presented) The device of claim 28, the device sufficient to pump the predetermined volume of insulin up to 3000 times.

32. (Previously Presented) The device of claim 11, wherein the predetermined volume of fluid is in a range of 0.5 microliter to 5 microliters.

33. (Previously Presented) The device of claim 11, further comprising a housing for the cavity, the member, and the actuator, the housing of a construction sufficient for wearing by a user.

34. (Previously Presented) The device of claim 11, further comprising a housing for the cavity, the member, the actuator, the inlet, and the source, the housing of a construction sufficient for wearing by a user.

35. (Previously Presented) The device of claim 33 or claim 34, the housing comprising an adhesive sufficient for adhesion to the skin of a user.

36. (Previously Presented) The device of claim 11, further comprising:

a source of electrical energy operably connected to the shape memory alloy of the actuator; and

a pulse-generating circuit operably connected to the source of electrical energy.

37. (Previously Presented) The device of claim 36, wherein the pulse-generating circuit is programmable.

38. (Previously Presented) The device of claim 36, the pulse-generating circuit comprising:

a battery, a capacitor, a timing circuit, and a transistor switch, wherein the battery and capacitor are operably connected to each other in parallel, the capacitor is operably connected

to the shape memory alloy of the actuator via the transistor switch, and the timing circuit is operably connected to the battery and the transistor switch.

39. (Previously Presented) The device of claim 38, wherein the capacitor is of lower equivalent series resistance than the battery.

40. (Previously Presented) The device of claim 38, wherein, when the transistor switch is closed, electrical energy is provided to the shape memory alloy of the actuator primarily via the capacitor.

41. (Previously Presented) The device of claim 38, wherein the timing circuit is programmable.

42. (Previously Presented) The device of claim 36, the pulse-generating circuit comprising:

a battery, a capacitor, a signal converter, a timing circuit, and a transistor switch, wherein the battery and capacitor are operably connected to each other in parallel via the converter, the capacitor is operably connected to the shape memory alloy of the actuator via the transistor switch, and the timing circuit is operably connected to the battery and the transistor switch.

43. (Previously Presented) The device of claim 42, wherein the signal converter is sufficient for allowing the capacitor to be charged to an equal or greater extent than the battery.

44. (Previously Presented) The device of claim 42, wherein the signal converter comprises a DC to DC converter.

45. (Previously Presented) The device of claim 42, wherein the transistor switch is sufficient for modulation to transmit electrical energy in at least one pulse.

46. (Previously Presented) The device of claim 42, further comprising an inductor and a diode, wherein the capacitor is operably connected to the shape memory alloy of the actuator via the transistor switch, the inductor, and the diode.

47. (Previously Presented) The device of claim 46, wherein the inductor and the diode are sufficient to allow electrical energy to flow through the shape memory alloy of the actuator after the transistor switch, modulated to transmit electrical energy in at least one pulse, is open.

48. (Previously Presented) The device of claim 42, wherein the timing circuit is programmable.

49. (Previously Presented) A method of pumping a predetermined volume of fluid, comprising:

providing a cavity operably associated with an inlet and an outlet, the cavity at least partially defined by a resilient housing;

providing a source of fluid operably associated with the inlet, an inlet check valve operably associated with the inlet, and an outlet check valve operably associated with the outlet;

providing a member in a first position under bias;

providing a shape memory alloy operably associated with the member;

providing pulses of electricity to the shape memory alloy to move the member to a second position; and

ceasing the providing of pulses of electricity to the shape memory alloy to return the member to the first position;

the resilient housing being fully compressed when the member is in one of the first position and the second position such that the cavity is empty of the predetermined volume of fluid, and being fully decompressed the resilient housing when the member is in a different one of the first position and the second position such that the cavity is filled with the predetermined volume of fluid.

50. (Previously Presented) The method of claim 49, further comprising cycling through said providing pulses of electricity to the shape memory alloy and said ceasing the providing of pulses of electricity to the shape memory alloy.

51. (Previously Presented) The method of claim 49, wherein said providing pulses of electricity to the shape memory alloy and said ceasing the providing of pulses of electricity to the shape memory alloy are programmatically controlled.

52. (Previously Presented) A method of pumping a predetermined volume of fluid, comprising:

providing a cavity operably associated with an inlet and an outlet, the cavity at least partially defined by a resilient housing;

providing a source of fluid operably associated with the inlet, an inlet check valve operably associated with the inlet, and an outlet check valve operably associated with the outlet;

providing a member in a first position under bias;

providing a shape memory alloy operably associated with the member;

increasing the temperature of the shape memory alloy to move the member to a second position; and

after said increasing, decreasing a temperature of the shape memory alloy to return the member to the first position;

the resilient housing being fully compressed when the member is in one of the first position and the second position such that the cavity is empty of the predetermined volume of fluid, and being fully decompressed the resilient housing when the member is in a different one of the first position and the second position such that the cavity is filled with the predetermined volume of fluid.

53. (Previously Presented) The method of claim 52, wherein said increasing the temperature of the shape memory alloy comprises providing pulses of electricity.

54. (Previously Presented) The method of claim 53, wherein said decreasing the temperature of the shape memory alloy comprises ceasing the providing of pulses of electricity.

55. (Previously Presented) The method of claim 52, further comprising cycling through said increasing the temperature of the shape memory alloy and said decreasing the temperature of the shape memory alloy.

56. (Previously Presented) The method of claim 52, wherein said increasing the temperature of the shape memory alloy and said decreasing the temperature of the shape memory alloy are programmatically controlled.